

POSTGRADUATE FOURTH SEMESTER EXAMINATION, 2022

CHEMISTRY

Course Code: CHEM 401E

Course Id: 41451

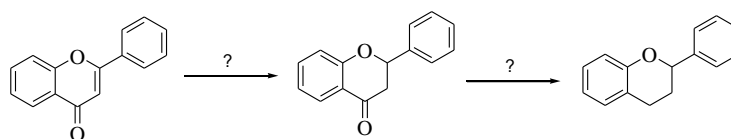
Organic Chemistry Special

Time: 2 Hours

Full Marks: 40

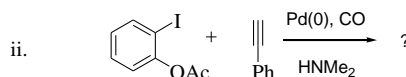
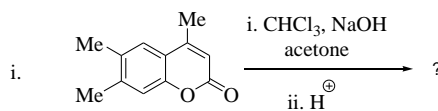
*The figures in the margin indicate full marks**Candidates are required to give their answers in their own words as far as practicable*1. Answer *any five* of the following questions: 2×5 = 10

- (a) What do you mean by ED₅₀?
- (b) Mention two developing agents for paper chromatography.
- (c) What do you mean by ANRORC rearrangement? Give one suitable example.
- (d) Identify the missing reagents in the following sequence of reactions.



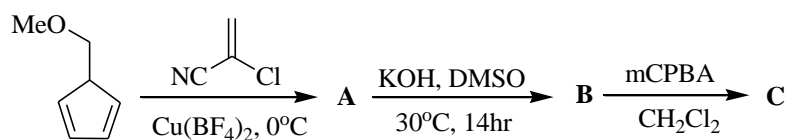
- (e) Convert: Cholesterol to 5 α -Cholanic acid.
- (f) What is ion exchange chromatography?
- (g) Write the name and structure of an “Antimalarial” drug.
2. Answer *any four* of the following questions: 5×4 = 20

(a) Predict the major product in each of the following reactions with suitable mechanism-

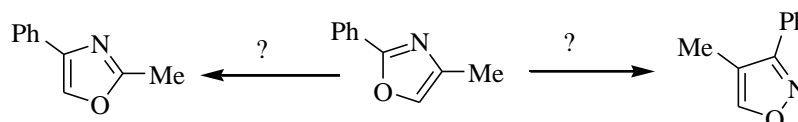


2.5+2.5 = 5

- (b) Predict the products **A** to **C** formed in the following sequence of reactions with viable mechanism. **Please Turn Over**
5

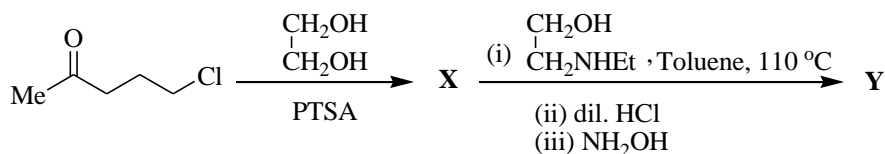


- (c) (i) Arrange the given solvents with increasing eluting power - petroleum ether, cyclohexane, ethanol, acetone, ether, benzene.
(ii) Write down the missing reagents required in the following transformations and give plausible mechanism.



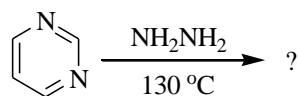
2+3 = 5

- (d) (i) In column chromatography mention the stationary phases (two each) that are-
(I) weak adsorbent
(II) medium adsorbent
(III) strong adsorbent
(ii) Write down the structures of missing compounds.



(1+1+1)+2 = 5

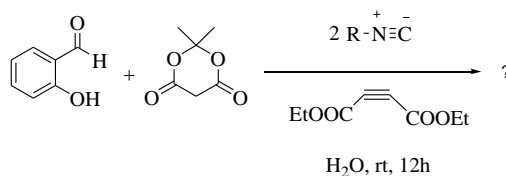
- (e) (i) Synthesize pyrazole from pyrimidine. Give plausible mechanism.
(ii) Explain SAR and QSAR models with suitable examples. 2+3 = 5
(f) (i) Write one of the synthesis outline of Riboflavin.
(ii) Predict the product(s) of the following reaction and provide mechanism -



2.5+2.5 = 5

3. Answer *any one* of the following questions: 10×1 = 10

- (a) (i) Identify the products formed in the following reactions and provide the plausible mechanism.



- (ii) State how silica and alumina are activated for column chromatography?
(iii) Arrange oxazole, thiazole and imidazole according to the descending order of aromaticity and give reason for your choice.
(iv) What physiological effect do you expect on megadose of vitamin C?

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(b) Predict the product(s) with explanation.

